



## **Adhesion, proliferation and survival of *Salmonella* in *Arabidopsis thaliana* seedlings**

Röd, Sara Katrine Solhøj; Knøchel, Susanne; Sakuragi, Yumiko

*Published in:*  
Global issues in food microbiology

*Publication date:*  
2012

*Document version*  
Early version, also known as pre-print

*Citation for published version (APA):*  
Röd, S. K. S., Knøchel, S., & Sakuragi, Y. (2012). Adhesion, proliferation and survival of *Salmonella* in *Arabidopsis thaliana* seedlings. In *Global issues in food microbiology: 23<sup>rd</sup> International ICFMH Symposium FoodMicro 2012; abstract book* (pp. 267). ICFMH.

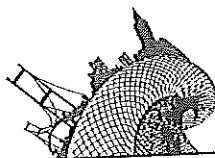
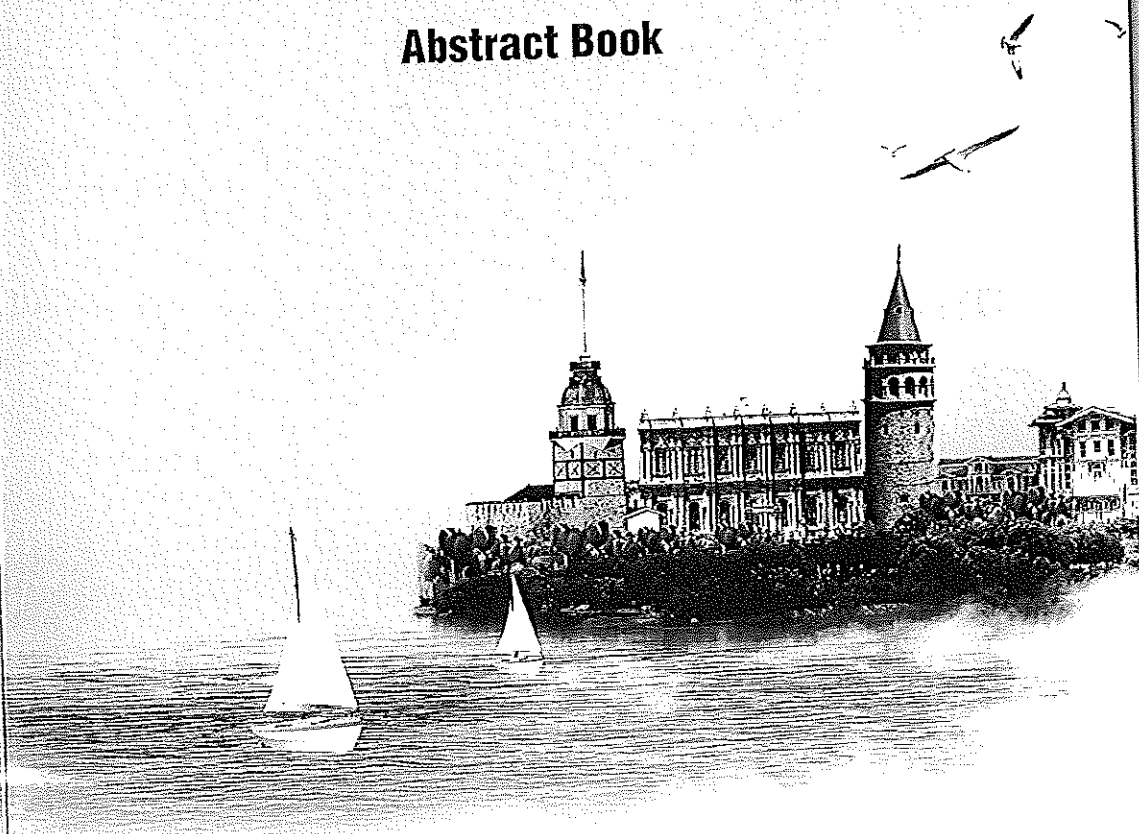


**23<sup>rd</sup> INTERNATIONAL ICFMH SYMPOSIUM**  
**FoodMicro 2012**



**Global Issues In Food Microbiology**

**Abstract Book**



**FoodMicro**

3-7 SEPTEMBER 2012 ISTANBUL



P-79

## Adhesion, proliferation and survival of *Salmonella* in *Arabidopsis thaliana* seedlings

Sara Katrine RØD<sup>1</sup>, Susanne KNØCHEL<sup>1</sup>, Yumiko SAKURAGI<sup>2</sup>

1: Copenhagen University, Food Science, Frederiksberg C, DENMARK

2: Copenhagen University, Plant Biology and Biotechnology, Frederiksberg C, DENMARK

Corresponding author: sararod@life.ku.dk

The consumption of non-heat treated produce from global sources are increasing and as result we see more foodborne infections caused by lettuce, sprouts, herbs, fruits and other plant products. The aim of the present study was to investigate the adhesion of *Salmonella* to plant seedlings. *Arabidopsis thaliana* was applied as a model for fresh produce and infected with wild type (WT) strains of *S. Newport*, *S. Typhimurium*, *S. Weltevreden*, and *S. Senftenberg*. The seedlings were incubated in Murashige and Skoog medium with an inoculum of  $10^7$  cfu/ml for 0-24 hours. Infected seedlings were subsequently washed in sterile water and treated with 5% sodium hypochlorite for 0-15 min to inactivate cells exposed at the surface. After just 30-60 s of incubation, up to  $10^5$  cfu was recovered from water washed samples. Within a few hours of incubation numbers increased with approx. one additional log unit and yet another after 24 hours. While the population in the inoculum remained constant the recovered populations from infected seedlings treated with hypochlorite increased with incubation time. Thus, inactivation became less efficient with longer plant-microbe interaction time. There were no significant differences between the applied WT strains. Nor did induced stomata closure of the seedlings cause significant changes. Inactivation curves as function of hypochlorite treatment time displayed a triphasic behaviour, with an initial steep curve (1-2 log cfu/min), a slower phase (0.1-0.3 log cfu/min) and finally a steeper phase (~0.5 log cfu/min). This triphasic behaviour was significantly less distinct when a stress sensitive *S. Typhimurium* RpoS mutant was used and the inactivation curve remained relatively steep throughout the treatment (0.5-1 log cfu/min). Similar results were obtained using a *S. Typhimurium* FliC mutant. Infecting seedlings of an *Arabidopsis* Rwa2 cell wall mutant with less and deformed trichomes did not cause any significant changes in the recovery of *S. Newport* indicating that intact trichomes are not vital for adhesion and infection.